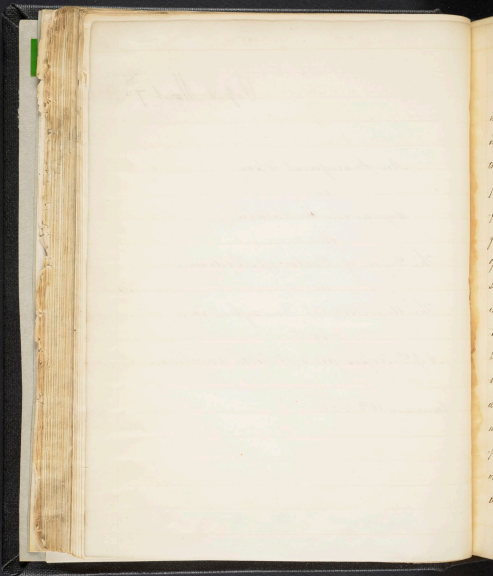


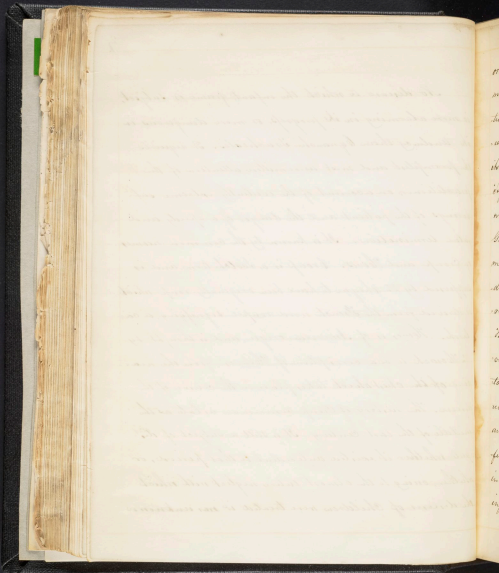
Paperd March 7th 1828

An Inaugural Essay
on
Asthma Trachealis,
for
The Degree of Doctor of Medicine
in
The University of Pennsylvania,
by
A. J. DeKoset Junr. of North Carolina.

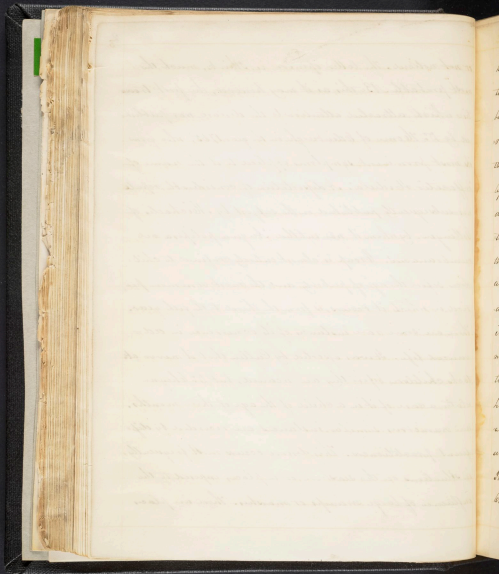
January 16th 1828.



No disease to which the infant frame is subject, is more alarming in its progress, or more dangerous in its tendency than *Cynanche Trachealis*. It requires the promptest and most unremitted attention of the practitioner, on account of the evidently extreme sufferings of the patient and the danger of a speedy and fatal termination. It is known by the common names of Croup and Hoarseness. Croup is a Scotch term, and is supposed by Dr. Sydenham to have been originally *roup* which is derived from the French word *rouper* signifying a catarrh. Hoarseness is of American origin, and is thought by Dr. Hosack to be a corruption of *Hoarseness* from the heaving of the chest, which takes place in the course of the disease. The history of Croup commences as late as the middle of the last Century. It is still a subject of dispute whether it existed antecedent to that period, or whether, owing to the almost entire neglect with which the diseases of Children were treated it was unknown



or not noticed. The latter opinion is, I think, much the most probable. Be this as it may however, the first treatise which attracted attention to the disease was published by Dr. Wern of Edinburgh in the year 1765, who from its most prominent symptoms applied to it the name of 'suffocatio stridula'. A dissertation of considerable repute was subsequently published on the subject by Michaelis of Göttingen, by whom it was entitled 'Angina polyposa et membranacea'. Croup is almost entirely confined to children before the age of puberty and the most common period in which it occurs, is from the third to the fifth year. There are some rare instances of its occurrence in advanced life. It was asserted by Cullen that it never attacks children before they are weaned, but Dr. Whynne relates a case of it in a child of the age of three months, and numerous similar instances are recorded by different practitioners. This disease occurs most frequently in situations on the seashore, or in places exposed to the influence of large swamps or marshes. There are places

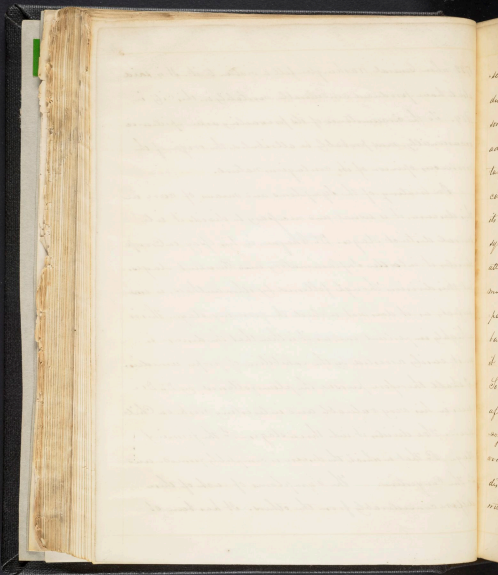


however, thus exposed, in which it does not prevail. The town in which I reside, (Wilmington, North Carolina) is but six or seven miles from the sea and is completely surrounded by swamps and rice fields; and the dampness of the air which ~~is~~ almost always suited to a greater or less extent, seems particularly calculated to produce the disease or to favour its prevalence. But it is of comparatively rare occurrence. Of the Causes of Croup, by far the most common is exposure to a cold damp atmosphere and hence in some places, it is even difficult to raise children. It is sometimes also produced by worms and other irritations in the alimentary Canal. A full indigestible meal, taken just before going to bed is exceedingly apt to produce it. Dr. Ross mentions a case which occurred in his own family, caused by a drop of wine getting accidentally into the trachea. Croup has been said by some to arise from contagion, but the opinion is entirely groundless. It sometimes prevails epidemically. This is said by Dr. Baldrell to have been the case in Virginia in the year

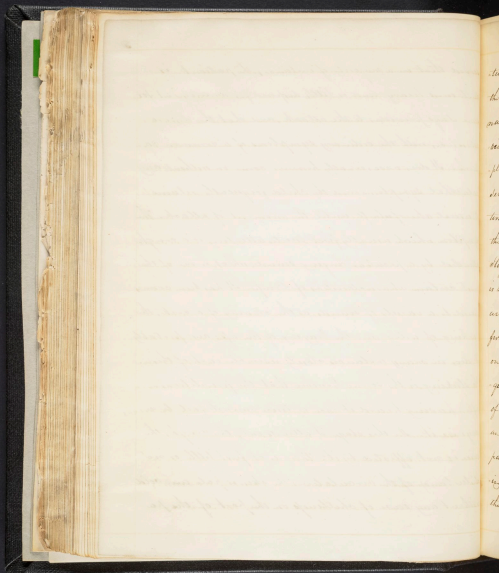
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1799 when General Washington fell a victim to it. It is said also to have produced considerable mortality in this City in 1809. To the circumstances of its prevailing as an epidemic occasionally, may probably be attributed the origin of the erroneous opinion of its contagious nature.

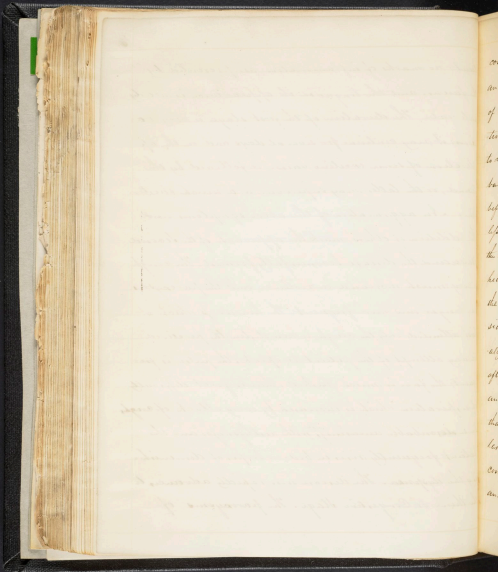
In treating of the symptoms and means of cure in this disease, it is usual and necessary to divide it into several distinct stages. Dr. Cheyne, in his essay on Croup divides it into the Inflammatory and Purulent stages, but this division though followed by other authors, is imperfect, as it does not include the forming stage. This is a highly important one, as it is then that the disease is most easily arrested by the exhibition of proper remedies. I shall therefore pursue the plan followed by Dr. Denman in his very valuable and interesting work on Croup. He divides it into three stages - 1st the forming stage - 2^d that in which the disease is completely formed - and 3^d the Convalescence. The Symptoms of each of these differ considerably from the others. It has been ob-



served that in a majority of instances, the patient is
 dull and heavy and is little disposed for movement for
 some days previous to the attack, and that the disease
 advances, with the ordinary symptoms of a common ca-
 tarrh. It does, occasionally however come on without any
 catarrhal symptoms and the child frequently retains
 its usual cheerfulness until the moment of attack. The
 symptom which usually first excites attention is a cough
 attended by a peculiar ringing sound, which is one of the
 most certain characteristics of Croup. It has been com-
 pared to a variety of sounds, as the ringing of a bell, the
 barking of a dog, and the braying of an ass; and probably
 it does in many instances closely resemble each of these.
 So striking is the sound however that the practitioner,
 after having heard it once or twice cannot fail to re-
 cognise it. In this stage it attends only the cough; the
 voice is not affected by it. There is at first little or no
 disturbance of the circulation; the skin is pale and cold
 without any sense of chilliness on the part of the pa-



sient; no marks of inflammation are presented by
 the fauces, and the tongue in its appearance is nearly
 natural. The duration of the first stage is very va-
 rious: it may continue for six, or eight days and on the ap-
 plication of some exciting cause be followed by the
 second, or the latter may supervene in a much shorter
 time. An aggravation of the above symptoms and
 the addition of others, mark the approach of the second
 stage, and the disease becomes fully formed. The cough
 is very much increased in violence and the paroxysms
 are longer and more frequent. The hoarseness which at
 first attended only the cough, is now distinctly perceived
 on any attempt of the patient to speak; the pulse is fre-
 quent; the face is much flushed; there is great difficulty
 of respiration which is increased by every attack of cough,
 an insupportable uneasiness^{cough} with restlessness, and the
 patient frequently rises in bed, in hopes of diminishing
 the dyspnoea. The disease now rapidly advances to
 the third or Congestive stage. The paroxysms of



cough become much more frequent and long continued, and are followed by extreme prostration; the difficulty of breathing is very much increased by the determination of blood to the lungs; the antispasmodic is so great as to render every position intolerable; the head is thrown back and the patient gasps for air, the face which was before flushed, is now pale and livid; the vein becomes lips harsh and ringing and assumes a wheezing sound; the shoulders are elevated at each inspiration and the heart thumps violently. The effects of this throbbing of the heart may sometimes be distinctly seen upon the sides of the thorax, and even the bedclothes are occasionally elevated. Death frequently takes place suddenly after an attack of cough, and sometimes insensibility and stupor close the scene; but it generally happens that the sufferings of the patient continue until the last moment: "The countenance" says Dr. Denon at the conclusion of his description of the symptoms, "is more anxious, beyond expression, the eyes become more

surprisingly brilliant and beseeching—they eloquently implore a relief which neither affection nor science can afford; and the poor sufferer expires with a look full of supplication and anguish." When Croup terminates fatally, death is almost invariably produced by a mechanical obstruction of aspiration. And this may be caused by the adventitious membrane which sometimes lines the trachea acting as a valve and preventing the entrance of air into the lungs, or by an accumulation of matter in the trachea and bronchia, or by a spasmodic action of the muscles of the larynx or of the muscular structure which enters into the composition of the trachea itself. When the disease terminates favourably the inflammation is followed by resolution; the spasmodic action ceases, and free expectoration takes place.

The duration of an attack is various; it has been known to end fatally in twenty-four hours, and instances are recorded of its continuing for weeks. But it usually runs its course in from three to five days.

In the early stage of croup, it may almost always be cured by the prompt administration of proper remedies; but after it is somewhat advanced the Prognosis is by no means so certain. The most favourable signs are a diminution of hoarseness succeeding the operation of medicines; the expectoration at the same time becoming less difficult. The termination will probably be unfavourable if the system obstinately resists the action of remedies, and the symptoms continue to increase in violence. Heaving of the shoulders and thumping of the heart are said to be invariably fatal signs.

Post mortem examinations prove the existence of inflammation in almost every case. The mucous membrane is not only affected but the muscular fibres of the larynx and trachea are implicated. The trachea and bronchia are furnished with mucus and lymph mixed frequently with a fluid resembling pus; and occasionally a tough substance in the form of a membrane lines the inner surface of the tube. The formation

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of this membrane has been denied by authors of the highest respectability, but having seen it myself in one instance, I am of course bound to believe in its existence. If death takes place in the Congestive Stage the lungs are found heavily engorged with blood.

The first object in the treatment of Croup when in its forming stage is to produce emesis, and the best article that can be used for this purpose is the Compound Syrup of Squills or Leech's Throat Syrup. By its combined emetic, cathartic, and diaphoretic properties, it clears the *prima via*, and equalises the circulation. It is very highly recommended by the Professor of Materia Medica in this University; and from his experience in the management of this disease as well as from the united testimony of all who have used the remedy there can be no doubt of its efficacy. In addition to this some stimulating liniment or a sinapism should be applied to the throat; and the patient carefully defended from cold. In the early stage when only cough and the

The first of these is the fact that the
 population of the country has increased
 in a very rapid manner. This is due to
 the fact that the country is very fertile
 and the climate is very healthy. The
 second fact is that the country is very
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catarrhal symptoms prevail, this plan will rarely fail to give relief. But if from neglect of remedies, or from any other cause the disease becomes fully formed, or if the practitioner, as is very frequently the case, is not called until this takes place, the treatment must be more active. An important object ~~object~~ in this stage also is to produce vomiting, but it is strikingly characteristic of this disease when at its height, that it resists the action of an emetic sometimes with the most unrelenting obstinacy. It is therefore necessary to give the remedies in large doses, and to use auxiliary means to promote their operation. The most prompt and active emetic is a combination of ipecac. with tartaric of antimony. The addition of a small quantity of Calomel adds much to its efficacy. I have repeatedly seen mercurial emetics of this kind prescribed by my father in several inflammatory affections of the throat and always with the most decided advantage. To promote its operation the warm bath should be used and the



patient kept in it for fifteen or twenty minutes. This means rarely fail to produce the desired effect and usually to relieve the symptoms. But by far the most important remedy is Bloodletting and this should be employed so as to have a full and decided effect on the system, or no good will result from it.

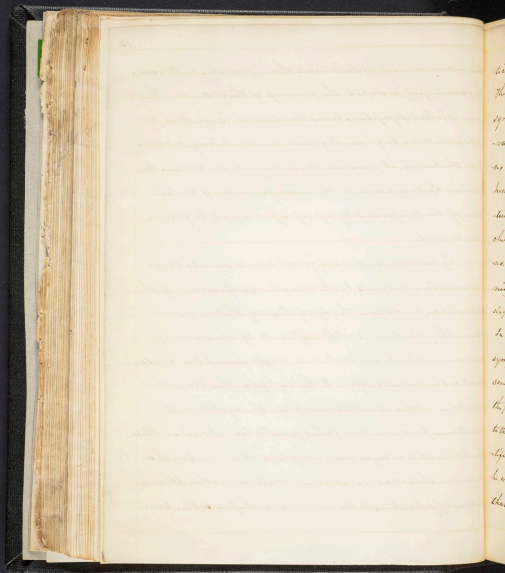
"A little bleeding is a dangerous thing,

Blood free, or open not the vital spring."

It is truly surprising to what an extent this operation may be carried even in very young children. Dr. Boerhaave relates the case of a child of the age of three or four years, from whom he abstracted twenty five ounces of blood in the course of one hour. The child, although almost in articulo mortis before the operation, recovered perfectly. Topical bleeding in aid of the lancet is a very valuable remedy, and for this purpose, leeches are far preferable to any other means or pump. If cups are used they should be applied to the sides, and not to the front, of the neck. After bleeding, we may again resort, if necessary to an emetic. The opera-

tion is more almost certain, and these remedies will rarely fail to put a stop to the progress of the disease. The more violent symptoms being subdued a large dose of calomel may be given. By removing irritating matters from the bowels, it prevents the tendency of the disease to return. If any cough or uneasiness remains small doses of the Compound syrup of squills will be found very useful.

If, however, the disease is not cured, and the inflammation extends to the minute ramifications of the bronchia, producing the symptoms of the Congestion stage, the practice is widely different. If venous action is increased to a great extent it must be in small quantities, for so great is the determination to the lungs in this stage that a sudden abstraction of blood from the system will sometimes produce even fatal prostration. Spicae blinding by leeches or cups is a valuable substitute for the lancet in these cases. A large blister and other stimulating applications to the chest are indispensable. Some



ties and the warm bath will also be of great service.

This may be followed by expectorant doses of the compound syrup before alluded to. But after the disease has advanced to this stage, all our remedies are in many instances unavailing and the patient rapidly sinks. We must however, never abandon a patient for owing to the nature of the disease and to the great lacerations of life in children, recoveries frequently take place under circumstances apparently desperate. Much dispute has arisen concerning the propriety of the operation of bronchotomy in this last stage of Croup for the purpose of abstracting the membrane. In cases where all hope of recovery is abandoned and when the symptoms indicate the presence of the membrane, I think, there can be no reasonable objection to the operation. If the life of the patient is saved by it and the dying infant thus restored to the arms of its distressed parents, what a pleasing gratification will it afford the practitioner! and if it fails he will at least have the satisfaction of being conscious that he has discharged his duty.

